

# SEMICONDUCTOR DEVICE HAVING CONTACT PLUG AND METHOD FOR MANUFACTURING THE SAME

## Abstract of the Disclosure

5 A semiconductor device having a contact plug and a method for  
manufacturing the same are provided. A diffusion barrier layer is formed on a  
semiconductor substrate on which an insulating layer having a contact hole has  
been formed. A first metal layer is formed on the diffusion barrier layer filling the  
contact hole, and the first metal layer is etched back to a predetermined depth to  
10 expose a void in the first metal layer, if any, thereby forming a first sub-plug. A  
second metal layer is formed on the semiconductor substrate on which the first sub-  
plug has been formed. The second metal layer is polished so as to expose the top  
surface of the diffusion barrier layer on the insulating layer. As a result, a second  
sub-plug in the contact hole is formed. Therefore, a contact plug comprising the first  
and second sub-plugs and having strong resistance to particles generated in  
chemical and mechanical polishing (CMP) has been formed in the contact hole  
without a void or crack.

0905388-091701  
T07T60-885560